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**NEW AND INTERESTING
MEXICAN ORCHIDS**

BY
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IN 1938 I went to Mexico to see the orchid herbarium of Erik Oestlund and if possible to secure it as an addition to the Ames Herbarium at Harvard University. The Oestlund heirs gave the collection to the Ames Herbarium and it was forwarded to Cambridge.

The collection was carefully studied and has now been incorporated with the Ames Herbarium.

The Oestlund collections were made principally by Otto Nagel, Juan González and Mr. Oestlund, with the occasional help of others. The herbarium is by far the largest single collection of orchids ever made in Mexico, consisting of about four thousand numbers, many of them in duplicate. The serial numbers run from 500 to 8037. A large portion of the numbers in the series, however, are not represented by specimens.

Papers describing novelties from the Oestlund herbarium have appeared occasionally in this journal as the study and naming of the collection progressed. This paper describes the last of such novelties, as well as some others that were discovered in other collections during the time that the Oestlund collection was being studied.

A complete set of the Oestlund specimens, as well as the types of all of the novelties described from it, is to

be found in the Ames Herbarium. The second and third sets from the collection are to be found in the Herbarium of the Missouri Botanical Garden and in the United States National Herbarium.

***Spiranthes chartacea* L. O. Williams sp. nov.**

Herbae erectae, terrestres, usque ad 4.5 dm. altae. Folia elliptica ut videtur. Inflorescentia confertiflora, pauci- vel multiflora. Sepalum dorsale lanceolatum, acutum. Sepala lateralia linearia, acuta. Petala late oblanceolata, falcata, unguiculata, acuta, apice plusminusve denticulata. Labellum panduratum, breviter unguiculatum.

Erect, terrestrial herbs, up to 4.5 dm. tall. Scape covered with chartaceous, lanceolate, acute or acuminate bracts, with the remains of the leaves toward the base. Leaves not present at the flowering stage, apparently elliptic and perhaps up to 8 cm. long and 1.5 cm. broad. Inflorescence up to 7 cm. long, congested, few- to several-flowered; floral bracts up to 2.5 cm. long, ovate-lanceolate to ovate, acuminate, chartaceous, striated. Dorsal sepal 7-9 mm. long and 2.5-3 mm. broad, lanceolate, acute, 3-nerved, pubescent dorsally nearly to the apex. Lateral sepals 8-10 mm. long and 1.5-2 mm. broad, linear, acute, 3-nerved, pubescent dorsally to about the middle, forming a short mentum at the base. Petals 6-8 mm. long and about 2 mm. broad, broadly oblanceolate, falcate, unguiculate, acute, 3-nerved, the apical half more or less denticulate, adnate to the dorsal sepal. Lip 9-10 mm. long and 4-5 mm. broad, pandurate, short-unguiculate; terminal lobe 5-6 mm. long and 4-5 mm. broad, oval to suborbicular, acute to truncate, entire or more or less denticulate, both surfaces papillose; basal lobes about 2 mm. long and 4 mm. across, rounded, adnate to the column; claw about 2 mm. long and 1 mm.

broad, the margins fleshy-thickened, short-pubescent. Column about 5 mm. long including the lanceolate or lanceolate-triangular, flattened rostellum.

MEXICO: under pines, Barranca del Laurel, northeast of Ciudad Guzmán, State of Jalisco, altitude 2000 m., longitude $103^{\circ}26'$ west, latitude $19^{\circ}42'$ north, February 26, 1936, *Nagel & Navarro 5408*; under pines, Barranca del Laurel, northeast of Ciudad Guzmán, State of Jalisco, altitude 2000 m., longitude $103^{\circ}26'$ west, latitude $19^{\circ}42'$ north, March 8, 1936, *Nagel & Navarro 5419* (TYPE in Herb. Ames No. 54606).

There are a number of species of *Spiranthes* in Mexico which have chartaceous or semi-chartaceous floral and cauline bracts. *Spiranthes chartacea* is perhaps more closely allied to *S. albovaginata* C. Schweinf. than to any of the other species, but it is amply distinct in the shape of the lip, sepals and petals.

***Spiranthes congestiflora* L. O. Williams sp. nov.**

Herbae terrestres, erectae, usque ad 20 cm. altae. Folia ignota. Inflorescentia congestiflora, subcapitata, pauci- vel pluriflora. Sepalum dorsale lineari-lanceolatum, acutum, carnosum. Sepala lateralia linearia vel lineari-lanceolata, acuta, leviter falcata, carnosum. Petala anguste oblanceolato-spathulata, acuta vel obtusa, carnosum. Labellum lineari-oblongum, supra basim et sub apice constrictum. Columna sectionis.

Small, erect, terrestrial herbs, up to 20 cm. tall. Scape slender, with several scarious, semiamplexicaul, ovate-lanceolate bracts. Leaves unknown. Inflorescence congested, subcapitate, few- to several-flowered. Dorsal sepal 15–19 mm. long and 3–4 mm. broad, linear-lanceolate, acute, fleshy, 3- to 5-nerved. Lateral sepals 14–16 mm. long and 2.5–3.5 mm. broad, linear or linear-lanceolate, acute, slightly falcate, 3-(4-)nerved, fleshy. Petals 14–15 mm. long and about 2.5 mm. broad, narrowly oblanceolate-spatulate, acute or obtuse, fleshy, 3-nerved. Lip

15–17 mm. long and about 6 mm. broad, linear-oblong in outline, constricted above the base and again below the apex; terminal portion ovate, crenulate, obtuse or acute; basal portion concave; disc pubescent. Column of the section *Sarcoglottis*.

MEXICO: Barranca del Laurel, Moralia, State of Michoacán, altitude 2000 m., "9.5.1912," *Arséne 9026* (TYPE in U. S. Nat. Herb.).

Spiranthes congestiflora resembles several of the species of the *Sarcoglottis* section of *Spiranthes*, but does not match any one known to me. The congested inflorescence is distinctive.

***Spiranthes falcata* L. O. Williams sp. nov.**

Herbae terrestres, graciles, 17–35 cm. altae. Inflorescentia brevis, pauciflora. Sepalum dorsale lanceolatum, acutum vel obtusum, trinervium. Sepala lateralia lineari-lanceolata, acuta vel obtusa, trinervia. Petala elliptico-lanceolata, falcata, acuta vel obtusa, trinervia. Labellum oblongo-panduratum; lobus terminalis subrotundatus, obtusus; lobi laterales acriter angulati. Columna generis.

Small, erect, terrestrial, slender herbs, 17–35 cm. tall. Stems slender, more or less covered with scarious, hyaline, striated, semiamplexicaul bracts. Leaves withered at anthesis, apparently elliptic and 4–8 cm. long, basal or nearly so. Inflorescence short, few-flowered; floral bracts similar to the cauline bracts, lanceolate to ovate-lanceolate, acuminate. Dorsal sepal about 5 mm. long and 2 mm. broad, lanceolate, acute or slightly obtuse, 3-nerved. Lateral sepals about 5 mm. long and 1.5 mm. broad, linear-lanceolate, acute or obtuse, 3-nerved. Petals about 5 mm. long and 1.5 mm. broad, elliptic-lanceolate, falcate, acute or obtuse, 3-nerved, lightly adnate to the dorsal sepal. Lip 6–7 mm. long and 3–3.5 mm. broad, oblong-pandurate, somewhat attenuated at the base;

terminal lobe subrotund, obtuse, upper surface papilliferous; basal half of the lip with two sharply angled lobes, disc puberulent. Column 4–5 mm. long, puberulent below; anther subrotund, with a callus-thickening in the middle.

MEXICO: in oak and pine forest between Guanacevi and Guadalupe y Calvo, Durango to Chihuahua, longitude ca. $105^{\circ}56'$ west, latitude $25^{\circ}56'$ north, at ca. 2200 meters altitude, February 24, 1936, Juan G. [onzáles] 5023 (TYPE in Herb. Ames No. 51352); ibid, February 10, 1936, Juan G. [onzáles] 5018.

Both of the specimens cited were flowered in Cuernavaca from roots sent in by the collector.

Spiranthes falcata is somewhat allied to *S. eriophora* Robins. & Greenm.

***Spiranthes Gonzalezii* L. O. Williams sp. nov.**

Herbae parvae, terrestres, usque ad 25 cm. altae. Folia rosulata, oblanceolata vel obovata, obtusa vel acuta. Sepalum dorsale ovato-lanceolatum, obtusum. Sepala lateralia lanceolata, obtusa. Petala lineari-oblonga vel lineari-lanceolata, obtusa. Petala lineari-oblonga vel lineari-lanceolata, obtusa, leviter falcata. Labellum ovato-sagittatum, prope apicem constrictum, breviter unguiculatum, plusminusve carnosum.

Small terrestrial herbs up to about 25 cm. tall. Scapes slender, with several scarious bracts. Leaves basal, 6–14 cm. long and 1.3–3.5 cm. broad, oblanceolate to obovate, obtuse or acute, thin, tapering gradually into a short petiole. Inflorescence strict, many-flowered; flowers small for the genus. Dorsal sepal about 3 mm. long and 1.5 mm. broad, ovate-lanceolate, obtuse, obscurely 3-nerved. Lateral sepals about 3 mm. long and 1 mm. broad, lanceolate, obtuse, 1-nerved. Petals about 3 mm. long and 0.75 mm. broad, linear-oblong to linear-lanceolate, obtuse, slightly falcate, 1-(2-)nerved, lightly adnate to the dorsal sepal. Lip about 2.5 mm. long and 1.5 mm.

broad, ovate-sagittate, prominently constricted toward the apex, short-unguiculate, more or less fleshy, the basal auricles especially so, 3- to 5-nerved. Column about 2 mm. long; anther about 1.5 mm. long, ovate-lanceolate.

MEXICO: Volcán Ceboruco, State of Nayarit, altitude 1300 m., longitude 104°31' west, latitude 21°08' north, November 14, 1935, Juan G. [onzáles] 5077 (TYPE in Herb. Ames No. 51337).

Spiranthes Gonzalezii is not closely related to any species known to me, but seems to be somewhat allied to *S. sparsiflora* C. Schweinf.

Juan Gonzáles, for whom this species is named, is a native Mexican who collected a large number of orchids under the direction of Erik Oestlund and Otto Nagel. Although he apparently spelled his name Gonzáles (on labels often Juan G.) the correct Spanish form González is used in the specific name.

***Spiranthes Nagelii* L. O. Williams sp. nov.**

Herbae terrestres, graciles, 12–30 cm. altae. Folia rosulata vel subrosulata, lanceolata, ovato-lanceolata, ovato-oblonga vel suborbicularia. Inflorescentia pauciflora. Sepalum dorsale lanceolatum, acutum vel acuminatum. Sepala lateralia lineari-lanceolata, acuta, leviter falcata. Petala linearia, acuta, leviter falcata. Labellum oblongo-ovale, subpanduratum, breviter unguiculatum.

Slender terrestrial herbs, 12–30 cm. tall. Scapes slender, with several scarious, semiamplexicaul, lanceolate, acute or acuminate bracts, pubescent at least above. Leaves basal or nearly so, 3–9 cm. long and 2–5.5 cm. broad, lanceolate, ovate-lanceolate or ovate-oblong to suborbicular, acute or obtuse, thin; petiole 1–4 cm. long. Inflorescence few-flowered. Dorsal sepal about 13–15 mm. long and 3–4.5 mm. broad, lanceolate, acute or acuminate, 3-nerved, pubescent dorsally. Lateral sepals 10–13 mm. long and 2–3 mm. broad, linear to linear-

lanceolate, acute, somewhat falcate, 3-nerved, pubescent dorsally. Petals 11–14 mm. long and 1–1.5 mm. broad, linear, acute, slightly falcate, narrowest at the base, 1-nerved, adnate to the dorsal sepal above. Lip 13–17 mm. long and 5–6.5 mm. broad, oblong-oval, subpandurate, sharply constricted at the base and with two small basal auricles, short-unguiculate, pubescent on both sides at the base. Column 10–12 mm. long, prominently pubescent on the inner side, especially toward the base.

MEXICO: in soft black soil, region of Villa Juarez, State of San Luis Potosí, altitude ca. 1900 m., October 27, 1936, *Dino* 6497; on rocks in leaf mold, mountains above Tamasopo, State of San Luis Potosí, flowers pale pink, altitude ca. 700 m., August 20, 1937, *Dino* 6931 *in part*; in loose black soil, mountains in district of Juarez near Cerritos, State of San Luis Potosí, altitude ca. 1900 m., longitude 100° 49' west, latitude 22° 10' north, flowers pale pink, September 3, 1936, *Nagel & Dino* 6187 (TYPE in Herb. Ames No. 51255); in loose black soil, mountains near Cerritos, State of San Luis Potosí, altitude 1800 m., longitude 100° 16' west, latitude 22° 26' north, flowers pale pink, September 22, 1936, *Nagel & Dino* 6343.

Spiranthes Nagelii is closely allied to *S. durangensis* A. & S., from which it is distinguished by its broad leaves which are present at flowering time. In *S. durangensis* the leaves are lacking at anthesis or, if present, are lanceolate. The lip of *S. Nagelii* is only slightly constricted toward the middle and has basal calli which form small auricles; in *S. durangensis* the lip is prominently constricted near the middle and lacks basal calli or auricles.

The species is dedicated to Mr. Otto Nagel, one of the most discriminating of the collectors of Mexican Orchidaceae.

***Spiranthes pseudogoodyerioides* L. O. Williams**
sp. nov.

Herbae parvae, terrestres, usque ad 2 dm. altae. Folia rosulata, ovalia, oblonga vel oblongo-ovata, acuta vel leviter acuminata. Sepalum dorsale triangulari-lanceola-

tum, cochleatum. Sepala lateralia late lanceolata, leviter obliqua, acuta. Petala elliptica, arcuata, acuta. Label-lum sagittatum, leviter carnosum.

Small terrestrial, acaulescent herbs, up to 2 dm. tall. Leaves basal, petiolate; lamina 2–8 cm. long and 1.3–4 cm. broad, oval, oblong or oblong-ovate, acute or somewhat acuminate, 5- to 7-nerved, submembranaceous; petiole slender, shorter than the lamina. Scape erect, covered with scarious, lanceolate, acuminate bracts. Inflorescence compact. Flowers small. Dorsal sepal about 2 mm. long and about 1.25 mm. broad, triangular-lanceolate, cochleate, 1-nerved, pubescent dorsally. Lateral sepals about 2 mm. long and 1.2 mm. broad, broadly lanceolate, somewhat oblique, acute, 1-nerved, pubescent dorsally. Petals 1.5 mm. long and 0.6 mm. broad, elliptic, arcuate, acute, 1-nerved. Lip 1.5–1.8 mm. long and 1–1.5 mm. broad, sagittate, somewhat fleshy, 1-nerved. Column about 1.25 mm. long; anther erect, ovate. Ovary densely pubescent.

MEXICO: on rocks in shady, damp places near Verásteguí below “Las Canoas,” State of San Luis Potosí, sepals dark dingy green, petals gray-red, lip whitish with posterior half orange, longitude ca. $99^{\circ}28'$ west, latitude ca. $21^{\circ}57'$ north, altitude ca. 800–900 m., *Dino* 5268 (TYPE in Herb. Ames No. 51234); on rocks in loamy soil, below “Las Canoas” near “Espinazo del Diablo,” State of San Luis Potosí, longitude $99^{\circ}28'$ west, latitude $21^{\circ}57'$ north, altitude ca. 700 m., *Nagel & Dino* 5222.

Spiranthes pseudogoodyerioides is closely allied to the Cuban *S. Wrightii* (Reichb.f.) Schltr. from which it is distinguished by the petals, by the 1-nerved (or obscurely 3-nerved) lip—in contrast to a strongly 3-nerved lip with the veins thickened—and by the leaves which are abruptly contracted to the petioles.

Spiranthes pseudopyramidalis L. O. Williams
sp. nov.

Herbae erectae, graciles, terrestres, 3–5 dm. altae. In-

florescentia spicata, multiflora, congestiflora. Sepalum dorsale lanceolatum, acutum, leviter cochleatum. Sepala lateralia linearia vel lineari-lanceolata, obtusa vel acuta, leviter arcuata. Petala anguste elliptica, semilunata. Labellum lineari-oblongum et panduratum vel lanceolato-subpanduratum, obtusum.

Slender, erect, terrestrial herbs, 3–5 dm. tall. Stems covered with white, scarious, amplexicaul, striated, marcescent bracts. Leaves withering before anthesis, apparently up to about 12 cm. long and 3 cm. broad, elliptic, basal or on the lower part of the stem. Inflorescence a compact, many-flowered spike; bracts 0.7–1.5 mm. long, lanceolate to ovate-lanceolate, acuminate or acute, striate-nerved. Dorsal sepal 4.5–6 mm. long and 1–1.5 mm. broad, lanceolate, acute, slightly cochleate, 3-nerved, pubescent dorsally. Lateral sepals 4.5–6 mm. long and 1–1.5 mm. broad, linear to linear-lanceolate, obtuse or acute, slightly arcuate, obscurely 3-nerved, pubescent dorsally. Petals 4–6 mm. long and 0.8–1.2 mm. broad, narrowly elliptic, semilunate, 1-nerved, lightly adnate to the dorsal sepal. Lip 5.5–6.5 mm. long and 2–3.5 mm. broad, from linear-oblong and pandurate to lanceolate-subpandurate, obtuse, apex sharply recurved, inconspicuously articulate at the base. Column about 3–3.5 mm. long.

MEXICO: in black soil between rocks in scanty oak forest, Mt. Toro, west of Jaleaca, State of Guerrero, longitude ca. $99^{\circ}38'$ west, latitude $17^{\circ}23'$ north, altitude 1700 m., February 27, 1943, *Juan G. [onzáles]* 3270; stone fence, San Lucas, district of Temascaltepec, State of México, April 23, 1935, *Hinton* 7653; in loamy soil in oak-pine forest, 30 km. southwest of Miahuatlán (de las Flores), State of Oaxaca, longitude $96^{\circ}41'$ west, latitude $16^{\circ}12'$ north, altitude 2300 m., March 28, 1934, *Nagel* 3717; in oak woods, Cerro San Felipe, State of Oaxaca, March 24, 1934, *Nagel* 3743 (TYPE in Herb. Ames No. 51220); in loamy soil in oak-pine forest, Cerro San Felipe, State of Oaxaca, March 21, 1934, *Nagel* 3759; in loamy soil on grassy exposed slopes, mountains southeast of Ayntla Piñón, State of Oaxaca, longitude $96^{\circ}04'$ west, latitude $16^{\circ}59'$ north, April 5, 1934, *Nagel* 3787.

Spiranthes pseudopyramidalis is allied to *S. pyramidalis* Lindl. from which it is distinguished by the shape of the lip which is straight at the base and not geniculate, by the apex which is sharply recurved and not straight, and by the calli which are glabrous and not densely pubescent. The bracts of the stem and of the inflorescence are whiter in color.

***Spiranthes pubicaulis* L. O. Williams sp. nov.**

Herbae terrestres, erectae, graciles, usque ad 21 cm. altae. Folia ignota. Inflorescentia brevis, plusminusve laxa. Sepalum dorsale lanceolatum, acutum, trinervium, basi leviter concavum. Sepala lateralia triangulari-lanceolata, acuta, leviter arcuata, trinervia. Petala lanceolata, falcata, tri- usque ad quinque-nervia. Labellum oblongo-panduratum, trinervium. Columna generis.

Erect, slender, terrestrial herbs, up to 21 cm. tall. Scape slender, pubescent from base to apex, with three to four semiamplexicaul, subscarious, lanceolate to ovate-lanceolate bracts. Leaves unknown. Inflorescence short, rather lax, up to about 15-flowered. Dorsal sepal about 6 mm. long and 3 mm. broad, lanceolate, acute, densely pubescent dorsally, 3-nerved, somewhat concave at the base. Lateral sepals 6–7 mm. long and 2.5–3 mm. broad, triangular-lanceolate, acute, slightly arcuate, 3-nerved, densely pubescent dorsally. Petals 5–6 mm. long and about 2 mm. broad, lanceolate, falcate, 3- to 5-nerved. Lip about 8 mm. long and 4 mm. broad, oblong-pandurate, obscurely pubescent, the three main nerves with lateral branches; terminal half suborbicular, crenulate, papillose above; basal half suborbicular, attenuated to the base and with two marginal callus-thickenings, pubescent on both sides at the base. Column about 5 mm. long; rostellum short, subulate. Ovary densely pubescent.

MEXICO: "Jaltipan," Vera Cruz, July 5, 1910, *Orcutt 5056* (TYPE in Dudley Herbarium, Stanford University No. 155015).

Spiranthes pubicaulis is not closely allied to any previously described species, but is somewhat related to *S. tenella* L. Wms. which is described below.

***Spiranthes tenella* L. O. Williams sp. nov.**

Herbae terrestres, graciles, erectae, usque ad 35 cm. altae. Inflorescentia brevis, pauciflora. Sepalum dorsale elliptico-lanceolatum, acutum, trinervium. Sepala lateralia lineari-lanceolata, acuta, uninervia. Petala linearia, acuta, arcuata vel leviter sigmoidea, uninervia. Labellum oblongo-subpanduratum. Columna generis.

Slender, erect, terrestrial herbs, up to about 35 cm. tall. Stems very slender, about 1–1.5 mm. in diameter, with several semiamplexicaul, scarious, striated, acuminate sheaths. Inflorescence short, lax, few-flowered. Dorsal sepal about 8–10 mm. long and 2–3 mm. broad, elliptic-lanceolate, acute, 3-nerved. Lateral sepals about 7–8 mm. long and 1.5–2 mm. broad, linear-lanceolate, acute, 1-nerved. Petals 8–9 mm. long, about 1.5 mm. broad, linear, acute, arcuate or slightly sigmoid, 1-nerved. Lip about 9–10 mm. long and 5–6 mm. broad, oblong-subpandurate when expanded, both the apical and basal halves more or less rounded; terminal half squarrose above; basal half with pubescence extending from the base through the middle; claw about 1 mm. long.

MEXICO: near Guadalupe y Calvo, Chihuahua, longitude 105°36' west, latitude 26°28' north, at 2000–2500 meters altitude, lip snow white with yellowish brown veining, sepals and petals pink, veined Vandyke red, April 13, 1936, Juan G. [onzáles] 5027 (TYPE in Herb. Ames No. 51244).

Spiranthes tenella is more closely allied to *Spiranthes pubicaulis* than to any species previously described.

***Spiranthes tenuissima* L. O. Williams sp. nov.**

Herbae terrestres, graciles, erectae, usque ad 30 cm. altae. Inflorescentia elongata, plusminusve densa. Sepa-

lum dorsale lanceolatum, acutum. Sepala lateralia ligulata vel lanceolata, acuta, leviter arcuata. Labellum lineari-oblongum vel oblongo-lanceolatum, obtusum, ad basim attenuatum et subauriculatum.

Small, slender, erect, terrestrial herbs, up to 30 cm. tall. Roots fleshy, fascicled, fusiform. Stems very slender, provided with several scarious, acuminate bracts on the lower half. Leaves appearing before the flowers and soon withering, up to about 8 cm. long and 1.5 cm. broad, petiolate; the blade elliptic, acute, attenuated into the petiole at the base. Inflorescence a strict, slender, many-flowered raceme, up to about 16 cm. long; floral bracts 2–5 mm. long, cucullate, lanceolate, acuminate or aristate. Flowers small, white suffused with pink. Sepals lightly connate at the base and forming a tube. Dorsal sepal 2–3 mm. long and 0.5–0.7 mm. broad, lanceolate, acute. Lateral sepals 3–4 mm. long and 0.6–1 mm. broad, ligulate to lanceolate, acute, slightly arcuate, decurrent on the ovary and forming a subsaccate pouch into which the base of the lip fits. Petals 2.5–3 mm. long and 0.6–0.8 mm. broad, ligulate, obtuse, arcuate, lightly adnate to the dorsal sepal. Lip 3–4 mm. long and about 1.2 mm. broad, linear-oblong to oblong-lanceolate, obtuse, apex often crenulate-crisped, narrowed to the base and provided with two subauricular callus-thickenings.

MEXICO: mountains of Tlapacapan, west of Yantepec, State of Morelos, longitude $99^{\circ}04'$ west, latitude $18^{\circ}53'$ north, altitude about 1700 m., February 12, 1934, *Juan G. [onzáles]* 3369 (TYPE in Herb. Ames No. 51335); mountains above Puente de Ixtla, State of Morelos, longitude $99^{\circ}09'$ west, latitude $18^{\circ}37'$ north, altitude 1400 m., March 1, 1934, *Nagel & Juan G. [onzáles]* 3675.

***Spiranthes triliniata* Lindl. var. *crenulata* L. O. Williams var. nov.**

Haec varietas labelli lobo medio longiore crenulato a specie differt. Sepala lateralia obtusa.

MEXICO: grass field, La Mesa, Necaxa, Puebla, longitude 98°0' west, latitude 20°11' north, February 21, 1932, *Fröderström 2592* (TYPE in Herb. Ames No. 51295).

Variety *crenulata* is closely allied to var. *thelymitra* of which it is perhaps only a minor variation. The collection was made at the northernmost station for the species.

Corymborchis forcipigera (*Reichb.f.*) *L. O. Williams comb. nov.*

Macrostylis forcipigera Reichenbach filius in *Bonplandia* 2 (1854) 96.

Corymborchis cubensis Acuña in *Bol. Téc.* 60, Est. Exp. Agron. Santiago de Las Vegas (1939) 51; emend. and validated by Correll in *Bot. Mus. Leaf.* Harv. Univ. 8 (1940) 125.

Although no record of the type of this species is available, the original description leaves little doubt as to the species intended. The species occurs in Mexico, Guatemala, and Costa Rica, throughout the West Indies and in Colombia.

It is interesting to note that Reichenbach described both of the American species of *Corymborchis* (under *Macrostylis*) in the same year. These names seem to have escaped the attention of subsequent systematists.

Pleurothallis aristocratica *L. O. Williams sp. nov.*

Herbae parvae, epiphyticae. Folia oblanceolata, obtusa, coriacea, quam caules secundarii duplo longiora. Inflorescentia quam folia brevior. Sepalum dorsale anguste oblongum, obtusum, quinquenervium, subgaleatum, quam sepala lateralia longius, dorso apice apiculatum. Sepala lateralia usque ad super medium connata, ovata, recurvata, acuta, apiculata, basi gibbosa. Petala obovata vel deltoideo-obovata, obtusa, trinervia, leviter obliqua, unguiculata. Labellum unguiculatum, subcor-

datum, obtusum; basis biauriculata. Columna generis, arcuata.

Small, caespitose, epiphytic herbs. Secondary stems 2–4 cm. long, slender, covered with one or two scarios sheaths which are soon deciduous. Leaves 5–8 cm. long, 1.2–1.6 cm. broad, oblanceolate, obtuse, coriaceous, about twice as long as the secondary stems. Inflorescence few-flowered, shorter than the subtending leaf. Dorsal sepal 10–12 mm. long, 3–5 mm. broad, narrowly oblong, obtuse, 5-nerved, subgaleate, exceeding the lateral sepals, dorsally apiculate at the apex. Lateral sepals 7–8 mm. long, the pair about 6 mm. broad, connate for a little more than half their length, ovate, strongly gibbous at the base and strongly recurved, each sepal 3-nerved, acute, apiculate. Petals 4–4.5 mm. long and about 2.5 mm. broad, obovate or deltoid-obovate, obtuse, 3-nerved, somewhat oblique, unguiculate. Lip unguiculate, claw about 1 mm. long, short-biauriculate at the base; lamina 2.5–3 mm. long and about 2–2.5 mm. broad, subcordate, obtuse, somewhat constricted toward the apex, with two crescent-shaped lamellate calli extending from the base nearly to the apex and with two smaller, serrate-lamellate calli at the middle near the base. Column 4–5 mm. long, arcuate, anterior half winged with the wings serrulate; pollinia two, ceraceous; column-foot about 2 mm. long.

MEXICO: on trees in oak forest near Omiltemi, State of Guerrero, at 1840 meters altitude, longitude $99^{\circ}41'$ west, latitude $17^{\circ}30'$ north, April 22, 1935, Juan G. [onzáles] 3245 (TYPE in Herb. Ames No. 51931).

The type is a specimen collected at the locality indicated and flowered in a greenhouse in Mexico City.

Pleurothallis aristocratica is allied to *P. hieroglyphica* Ames from which it may be distinguished by: 1) flowers about twice as large, 2) striated not mottled sepals, 3)

dorsal sepal 5-nerved, not 3-nerved, 4) lip with four lamellate calli instead of two, 5) petals 3-nerved not 1-nerved.

Pleurothallis involuta *L. O. Williams sp. nov.*

Herbae perparvae, repentes vel caespitosae, epiphyticae. Folia elliptico-ovalia vel ovalia, obtusa vel plusminusve acuta, marginata. Inflorescentia uni- vel pauciflora, quam folia longior. Sepalum dorsale naviculare, oblongo-lanceolatum, acutum, uninervium. Sepala lateralia basi plusminusve libera, obliqua, oblongo-lanceolata, uninervia. Petala anguste rhombica, acuta, leviter obliqua. Labellum lanceolatum, obtusum, leviter naviculare, ciliatum, basi biauriculatum, bicallosum. Columna generis.

Very small, repent or apparently caespitose, epiphytic herbs. Secondary stems very short, about 1 mm. long. Leaves elliptic-oval to oval, obtuse or somewhat acute, marginate, 4–6 mm. long, 2.5–4 mm. broad. Peduncle up to about 15 mm. long, much exceeding the subtending leaf. Inflorescence a one- to few-flowered raceme. Dorsal sepal about 2–2.5 mm. long and 1 mm. broad, navicular, oblong-lanceolate, acute, 1-nerved. Lateral sepals about 2–2.5 mm. long and 0.75–1 mm. broad, free nearly to their base, obliquely oblong-lanceolate, 1-nerved. Petals narrowly rhombic, acute, slightly oblique, obscurely 1-nerved, about 2 mm. long and 0.75 mm. broad. Lip lanceolate, obtuse, somewhat navicular, ciliate, biauriculate at the base, the auricles membranaceous, with a callus-thickening on either side of the middle which extends from the base to the apex and is involute toward the apex, about 1.5–2 mm. long and 0.5–0.75 mm. broad. Column about 1.5 mm. long, shorter than the petals.

MEXICO: on tree trunks and branches, malpais near Urupán, State of Michoacán, at 1700 meters altitude, petals and lip brown, sepals

Chartreuse yellow with rose-purple diffusion, September 14, 1936, *Lozado 6130*; on trees, Barranca de la Mina, southwest of Urupán, State of Michoacán, at 1300 meters altitude, longitude $101^{\circ}58'$ west, latitude $19^{\circ}26'$ north, lip and petals brown, sepals Chartreuse yellow with purplish infusion, April 20, 1933, *Nagel 2249* (TYPE in Herb. Ames No. 51956).

Pleurothallis involuta is allied to *P. abjecta* Ames from which it may be distinguished by the lateral sepals being free nearly to the base, not merely retuse; by the differently shaped petals; by the smaller flowers; and by the smaller elliptic-oval to oval epetiolate leaves, instead of oblanceolate-elliptic petiolate leaves.

Both collections of this species were intimately associated with another small orchid, *Jacquinella leucomelana* (Reichb. f.) Schltr.

This species appears to be caespitose when in its natural dense clusters, but the individual primary stems are actually found to be repent when they are separated from the mass.

***Pleurothallis longispicata* L. O. Williams sp. nov.**

Herbae parvae, caespitosae, epiphyticae, usque ad 4.5 cm. altae. Folia elliptica vel oblanceolata, obtusa, carnosae. Inflorescentia pluriflora, quam folia longior. Sepalum dorsale oblongo-lanceolatum, acutum vel obtusum, carnosum, trinervium. Sepala lateralia connata, oblongo-ovalia, basi gibbosa, trinervia. Petala oblongo-elliptica, obtusa, uninervia. Labellum subhastatum vel trilobulatum; lobi laterales parvi, obtusi; lobus medius oblongus, verrucosus, bicallosus. Columna generis.

Small, caespitose, epiphytic herbs. Secondary stems 2.5–4.5 cm. long, slender, covered with one or two scarious, brown sheaths which are often verrucose toward the base. Leaves 2.5 cm. long and 0.8–1.5 cm. broad, elliptic to oblanceolate, obtuse, fleshy, about as long as or longer or shorter than the secondary stems. Inflores-

cence a several-flowered raceme which much exceeds the subtending leaf. Dorsal sepal about 5 mm. long and 1.5 mm. broad, oblong-lanceolate, acute or obtuse, 3-nerved, fleshy, somewhat navicular. Lateral sepals connate for about two thirds of their length, about 4–4.5 mm. long, the pair about 2.5 mm. broad, oblong-oval, gibbous at the base, acute, each sepal 3-nerved. Petals about 2.5 mm. long and 1.2 mm. broad, oblong-elliptic, obtuse, 1-nerved. Lip about 3 mm. long and 1.5 mm. broad, subhastate or 3-lobed; the lateral lobes small, obtuse; mid-lobe oblong, verrucose, with an inconspicuous callus extending from each sinus toward the apex. Column about 2.5 mm. long, arcuate, clinandrium denticulate; column-foot about 1 mm. long.

MEXICO: Mt. Zempoala, State of Morelos, at about 3000 meters altitude, longitude $99^{\circ}19'$ west, latitude $19^{\circ}01'$ north, 1932, *Juan G. [onzáles]* 2678; Cumbres de la Cruz, between Urupán & los Reyes, State of Michoacán, flowers greenish with many purple dots, at 1700 meters altitude, September 20, 1935, *Juan G. [onzáles]* 4922; near Coalcomán, State of Michoacán, flowers greenish yellow with dark dots, at ca. 1700 meters altitude, longitude $103^{\circ}09'$ west, latitude $18^{\circ}47'$ north, June 22, 1933, *Halbinger* 1752 (TYPE in Herb. Ames No. 51941); on coffee shrubs, humid forest near Hacienda San Antonio, foot hills of Volcán Colima, sepals and petals dingy yellow, lip dull purple, at 900 meters altitude, longitude $103^{\circ}46'$ west, latitude $19^{\circ}26'$ north, September 15, 1934, *Nagel* 4022.

Pleurothallis longispicata has no near allies in Mexico or Central America.

***Pleurothallis oblanceolata* L. O. Williams sp. nov.**

Herbae parvae, epiphyticae, repentes vel caespitosae. Caules secundarii breves. Folia anguste oblanceolata, obtusa, coriacea. Inflorescentia uni- ad triflora; pedunculus filiformis, quam folia brevior. Sepalum dorsale lanceolatum, acutum, cucullatum, trinervium. Sepala lateralia sepalo dorsali similia sed leviter gibbosa. Petala lanceolata, acuminata, integra vel paulo serrulata, uninervia.

Labellum lineari-lanceolatum, acutum, intus paulo papillosum, basi biauriculatum. Columna alata, apice lacerata, breviter pedata.

Small, repent, or apparently caespitose, epiphytic herbs. Secondary stems short, mostly less than 5 mm. long. Leaves narrowly oblanceolate, obtuse, coriaceous, gradually tapered to the base, 25–45 mm. long, 4–7 mm. broad. Inflorescence 1- to 3-flowered (mostly one); the peduncle filiform, shorter than the subtending leaf; bracts ostiolate, mucronate, about 1.5 mm. long. Dorsal sepal about 3.5 mm. long and 1.1 mm. broad, lanceolate, acute, cucullate, 3-nerved, median nerve thickened and raised on the back. Lateral sepals about 3.5 mm. long and 0.8 mm. broad, free almost to the base, but the joined portion somewhat gibbous, otherwise as the dorsal sepal. Petals about 3 mm. long and 0.75 mm. broad, lanceolate, abruptly acuminate from the middle, entire or minutely serrulate, 1-nerved. Lip about 2.5 mm. long and 0.5 mm. broad, linear-lanceolate, acute, upper surface papilliferous (especially toward the base), slightly fleshy, obscurely sulcate along the median line, 3-nerved; base biauriculate, the auricles thin and membranaceous, about 0.1 mm. long. Column about 1.5 mm. long, winged and lacerated toward the apex; rostellum about 0.2 mm. long, oblong, navicular, exactly closing the stigmatic opening; column-foot about 0.5 mm. long, extending into the gibbous bases of the lateral sepals.

MEXICO: in damp forests on trees, Pacific side, river valley, Copalita, northwest of Pluma Hidalgo, at 1000–1100 meters altitude, longitude $96^{\circ}28'$ west, latitude $15^{\circ}57'$ north, sepals amber yellow, petals and lip blackish purple, September 1, 1937, Nagel & Juan G. [onzáles] 6456 (TYPE in Herb. Ames No. 51909).

Pleurothallis oblanceolata is closely allied to *P. minutalis* Lindl. It may be distinguished as follows:

P. oblanceolata

P. minutalis

Lip about six times longer than broad, biauriculate at the base.

Lip about three times longer than broad, not auriculate at the base.

Petals abruptly acuminate, entire or minutely serrulate.

Petals not acuminate, serrulate.

In addition there seem to be some differences in the column; the leaves of *P. oblanceolata* are comparatively long and narrow.

Pleurothallis Oestlundiana *L. O. Williams sp. nov.*

Herbae caespitosae, epiphyticae, usque ad 13 cm. altae. Caules secundarii graciles. Folia oblanceolata, obtusa, coriacea, caulibus subaequalia. Pedunculi uni vel plures, quam folia breviores. Sepalum dorsale anguste oblongo-spathulatum, obtusum, trinervium. Sepala lateralialia usque ad supra medium connata, uninervia, apice integra vel obscure dentata. Labellum lanceolato-obovatum, carnosum. Columna generis.

Caespitose, epiphytic herbs, up to 13 cm. tall. Secondary stems slender, 2.5–5 cm. long, covered with one or two scarious brown sheaths which are puberulent on the angles. Leaves 3–7 cm. long, 0.6–1.4 cm. broad, oblanceolate, obtuse, coriaceous, usually tapered gradually into a short petiole, about as long as or a little longer or shorter than the secondary stems. Peduncles one or several from the base of the subtending leaves, shorter than the leaf. Dorsal sepal 5–7 mm. long, 2–3 mm. broad, narrowly oblong-spatulate, obtuse, 3-nerved. Lateral sepals joined for about three quarters of their length, about 5.5 mm. long, the pair 3.5 mm. broad, oblong, acute, gibbous at the base, each sepal 3-nerved. Petals about 2.5 mm. long and 1.7 mm. broad, broadly clavate, 1-nerved, the apex entire or obscurely dentate. Lip about 4.5 mm. long and 2 mm. broad toward the tip, lanceolate-

obovate, posterior portion very fleshy with erect sides, anterior portion much thinner and verrucose. Column about 2 mm. long, slightly arcuate, clinandrium entire or denticulate; column-foot long, about 1.2 mm.

MEXICO: on trees in oak forest, region of Tenería, northwest of Taxco, State of Guerrero, sepals and petals greenish yellow with dull purplish infusion, longitude $99^{\circ}43'$ west, latitude $18^{\circ}36'$ north, at 2300 meters altitude, July 23, 1932, *Juan G. [onzáles] 1062* (TYPE in Herb. Ames No. 51792); on trees, near Mexicapa, mountains northwest of Cuernavaca, State of Morelos, sepals and petals greenish yellow, lip dull pinkish purple, longitude $99^{\circ}19'$ west, latitude $18^{\circ}59'$ north, at 2300 meters altitude, July 8, 1932, *Juan G. [onzáles] 2674*.

Pleurothallis Oestlundiana is not closely allied to any Central American *Pleurothallis*. Superficially it somewhat resembles *P. obovata* Lindl.

***Scaphyglottis pachyphylla* L. O. Williams sp. nov.**

Herbae parvae, repentes. Rhizomata elongata, simplicia vel ramosa. Pseudobulbi fusiformes vel ovoidei, unifoliati, approximati. Folia linearia vel lanceolata, acuta vel plusminusve obtusa, carnosissima vel teretia. Inflorescentia uniflora. Sepala lanceolata, acuta, quinquenervia. Petala lanceolata, obtusa vel acuta, quinquenervia. Labellum unguiculatum; unguis geniculatus et paulo cochleatus; lamina oblonga vel ovalis, callo subpeltato ad unguis et laminae junctionem ornata.

Small, repent, epiphytic herbs. Rhizome elongated, simple or branched, younger portions covered with bracts which soon fall away. Pseudobulbs 3–10 mm. long, 2–5 mm. thick, fusiform to ovoid, unifoliate, approximate, about 4–8 mm. apart. Leaves 1.2–3 cm. long, 2–5 mm. broad, linear to lanceolate, acute to somewhat obtuse, very fleshy or terete. Inflorescence 1-flowered; peduncle sheathed by hyaline bracts which are soon deciduous; bract subtending the flower 4–8 mm. long, ovate, acuminate. Flower large for the size of the plant. Sepals

8–9 mm. long, 3–3.5 mm. broad, erect or spreading, lanceolate, acute, 5-nerved. Petals 7.5–9 mm. long and 3–4 mm. broad, lanceolate, acute or obtuse, 5-nerved. Lip 8–12 mm. long, 5–6.5 mm. broad, short-clawed; the claw geniculate and somewhat cochleate; the lamina oblong to oval, with a subpeltate callus at the junction of the claw and the lamina; callus about 2.5–3 mm. long and 2–2.5 mm. broad. Column about 4 mm. long; column-foot about 1.5 mm. long; pollinia six, four of equal size and two much reduced, ceraceous, the larger ones laterally compressed.

MEXICO: near Santa Bárbara, southwest of Chilpancingo, State of Guerrero, longitude $99^{\circ}50'$ west, latitude $17^{\circ}19'$ north, at about 1800 meters altitude, November 15, 1932, *Juan G. [onzáles] 1666*; epiphyte on Trompillo, Cumbre, District of Temascaltepec, State of México, at 2750 meters altitude, September 15, 1932, *Hinton 1691* (TYPE in Herb. Ames No. 49613); on tree trunks, region of Temascaltepec, State of México, at 2800 meters altitude, September 15, 1932, *Hinton 1742*; on trees, mountains near Taxco, State of Guerrero, longitude $99^{\circ}33'$ west, latitude $18^{\circ}33'$ north, at 1900 meters altitude, September 1, 1937, *Lira 6947*; malpais on “siempre viva” trees, open places in oak-pine forest, Mt. “Cerro Chico,” northwest of Urupán, State of Michoacán, flowers pale green with brown marks on the lip, September 30, 1935, *Nagel 2243*; on trees in mixed forest, near “Los Fresnos” southwest of Guayameo, State of Guerrero, longitude $101^{\circ}26'$ west, latitude $18^{\circ}11'$ north, flowers pale green with brownish marks on the lip, at 2400 meters altitude, September 24, 1933, *Nagel 3112*; on trees in forest west of Taxco, State of Guerrero, longitude ca. $99^{\circ}37'$ west, latitude ca. $18^{\circ}32'$ north, at ca. 1900 meters altitude, July 23, 1932, *Nagel & Juan G. [onzáles] 1074*.

***Bletia ensifolia* L. O. Williams sp. nov.**

Herbae terrestres, usque ad 7 dm. altae. Cormi approximati, pyriformes. Folia ensiformia vel lineari-ensiformia, acuta. Sepalum dorsale oblanceolatum vel ellipticum, acutum, plurinervium. Sepala lateralia lanceolata vel elliptico-lanceolata, acuta, plurinervia. Petala oblanceolata, obtusa, leviter obliqua, apice serrulata. Labellum obovato-orbiculare, trilobatum, nervis crassis vel mediis

sublamellatis; lobi laterales lati, apice rotundati; lobus medius brevis, emarginatus. Columna generis.

Terrestrial herbs, up to 7 dm. tall. Corms approximate, pyriform, up to 4 cm. long and 1.5 cm. thick. Leaves 8–30 cm. long and 2–8 mm. broad, ensiform to linear-ensiform, acute. Inflorescence few-flowered; bracts 4–10 mm. long, lanceolate, acuminate, scarious. Dorsal sepal about 20 mm. long and 4.5 mm. broad, oblanceolate or elliptic, acute, several-nerved. Lateral sepals about 18 mm. long and 5.5 mm. broad, arcuate, lanceolate or elliptic-lanceolate, acute, several-nerved. Petals about 20 mm. long and 4.5 mm. broad, oblanceolate, obtuse, slightly oblique, apical portion more or less serrulate. Lip about 18 mm. long and 18 mm. broad, obovate-orbicular in outline, 3-lobed, with several ridge-like thickened veins or the central ones sublamellate; lateral lobes broad, rounded at the apex; mid-lobe short, emarginate. Column 10–12 mm. long.

MEXICO: rocky wooded hills near Guadalajara, State of Jalisco, August 29, 1893, *Pringle 4513*; Barranca de Río Blanco near Guadalajara, State of Jalisco, at 5000 ft. altitude, July 21, 1902, *Pringle 11184* (TYPE in Herb. Ames No. 4471).

The distinguishing characters of this species are the narrow leaves and the broad lip, which is about as broad as long. It does not seem to be closely allied to any other species.

***Bletia Greenmaniana* L. O. Williams sp. nov.**

Herbae terrestres, erectae, usque ad 7 dm. altae. Folia lanceolata, oblanceolata vel linearia, acuta vel acuminata, plicata, basi in petiolum attenuata. Sepala lanceolata, acuta, septemnervia. Petala oblanceolata vel elliptica. Labellum obovatum, integrum vel leviter undulatum; nervi medii incrassati. Columna arcuata, alata.

Erect, terrestrial herbs, up to 7 dm. tall. Scape with

one or two scarios bracts, otherwise naked. Leaves 25–45 cm. long, 0.6–2.2 cm. broad, lanceolate, oblanceolate or linear, acute or acuminate, plicate, tapered into a narrow petiolar base. Inflorescence 2- to 5-flowered; bracts up to 15 mm. long, ovate-lanceolate, acuminate, scarios. Sepals about 32–35 mm. long and 8 mm. broad, lanceolate, acute, about 7-nerved, mid-nerve lamellate dorsally. Petals about 33 mm. long and 10–11 mm. broad, oblanceolate to elliptic, the mid-nerve with or without a short lamellate callus at the base of the petal. Lip about 35 mm. long and 20 mm. broad, obovate, entire or somewhat undulate, the central nerves thickened, but not lamellate. Column about 28 mm. long, arcuate, winged, the apex inconspicuously auriculate.

MEXICO: région de Orizaba, état Vera Cruz, 28 Juillet 1865–1866, *Bourgeau 2812* (TYPE in Gray Herb.); Mt. Orizaba, State of Vera Cruz, at 4000 ft. altitude, August 31, 1891, *Seaton 523*.

Bletia Greenmaniana is superficially similar to *B. reflexa* Lindl. It is, however, distinguished from all of the species known to me by its entire or, at most, somewhat undulate lip.

Dr. J. M. Greenman indicated, many years ago, that the two specimens cited above were different from anything then known to him. They still seem to be undescribed, so it is with pleasure that the species is named for Dr. Greenman.

***Bletia Nagelii* L. O. Williams sp. nov.**

Herbae terrestres, usque ad 5 dm. altae. Cormus subglobosus vel pyriformis. Folia linearia, acuta, plicata. Inflorescentia pauci- vel pluriflora; bracteae lanceolatae, acuminatae, scariosae. Sepalum dorsale oblanceolatum, acutum, quinque- vel septemnervium. Sepala lateralia falcato-oblanceolata vel falcato-elliptica, acuta, quinque- vel septemnervia, basi mentum breve formantia. Petala

falcato-oblongata, obtusa, quinque- vel septemnervia. Labellum oblongo-obovatum, trilobatum, quinque- vel septemcallosum, columnae et columnae pedi adnatum; lobi laterales parvi, obtusi; lobus medius plicatus, retusus. Columna arcuata, alata.

Terrestrial herbs, up to 5 dm. tall. Corms subglobose or pyriform, 1–2 cm. long and about as thick or thicker. Leaves up to 50 cm. long, about 0.4–1 cm. broad, linear, acute, plicate (at least when dry). Inflorescence few- to several-flowered; bracts 2–8 mm. long, lanceolate, acuminate, scarious. Dorsal sepal about 15 mm. long and 3.5 mm. broad, oblanceolate, acute, 5- to 7-nerved. Lateral sepals about 14 mm. long and 4 mm. broad, falcate-oblongate or falcate-elliptic, acute 5- to 7-nerved, forming a short mentum at the base. Petals about 12 mm. long and 4 mm. broad, falcate-oblongate, obtuse, 5- to 7-nerved. Lip about 13–14 mm. long and 8 mm. broad, oblong-obovate in outline, 3-lobed, with five to seven lamellate calli extending from about the middle toward the apex, adnate to the column and column-foot for about 3 mm. at the base; lateral lobes small, obtuse; mid-lobe much plicated, retuse. Column erect, 10–12 mm. long, arcuate, winged.

MEXICO: under oak shrubs, "Loma de Ocate," Mt. San Felipe, State of Oaxaca, at 1900 meters altitude, flowers white, November 15, 1937, *Conzatti & Nagel 7113* (TYPE in Herb. Ames No. 57225).

An unusual species with very narrow leaves and white flowers.

Catasetum roseum (*Lindl.*) *Reichenbach filius* in Gard. Chron. (1872) 1003.

Clowesia rosea Lindley in Bot. Reg. 29 (1843) t. 39 and Misc. p. 25.

This curious little *Catasetum*, which is allied to *C. Warczewitzii* Lindl. & Paxt., has apparently never before

been reported from a wild specimen. It was described about one hundred years ago from greenhouse material. Lindley received flowers of the plant, from which he described the species, and soon afterward he illustrated it in the *Botanical Register*. Lindley's material, which was in cultivation in England, was said to have originated in Brazil. Recently we have received three different collections of this species from Mexico which perhaps indicates that the garden material on which the species was originally based came from Mexico rather than from Brazil. It is interesting to note that all of the species of the subgenus *Clowesia* are Central American,—a fact which also points to a Mexican rather than a Brazilian origin of this species.

EXPLANATION OF THE ILLUSTRATIONS

PLATE XXXII. *SPIRANTHES PUBICAILIS* *L. Wms.* 1, plant, one half natural size. 2, flower, opened out, two and one half times natural size.

SPIRANTHES FALCATA *L. Wms.* 3, plant, one half natural size. 4, flower, opened out, two and one half times natural size.

SPIRANTHES TENELLA *L. Wms.* 5, plant, one half natural size. 6, flower, opened out, one and one half times natural size.

SPIRANTHES NAGELII *L. Wms.* 7, plant, one half natural size. 8, flower, opened out, natural size.

SPIRANTHES CONGESTIFLORA *L. Wms.* 9, plant, one half natural size. 10, flower, opened out, natural size.

PLATE XXXIII. *SPIRANTHES PSEUDOGOODYERIOIDES* *L. Wms.* 1, plant, one half natural size. 2, flower, opened out, five times natural size.

SPIRANTHES GONZALEZII *L. Wms.* 3, plant, one half natural size. 4, flower, opened out, five times natural size.

SPIRANTHES PSEUDOPYRAMIDALIS *L. Wms.* 5, plant, one half natural size. 6, flower, opened out, two and one half times natural size.

SPIRANTHES TENUISSIMA *L. Wms.* 7, plant, one half natural size. 8, flower, opened out, five times natural size.

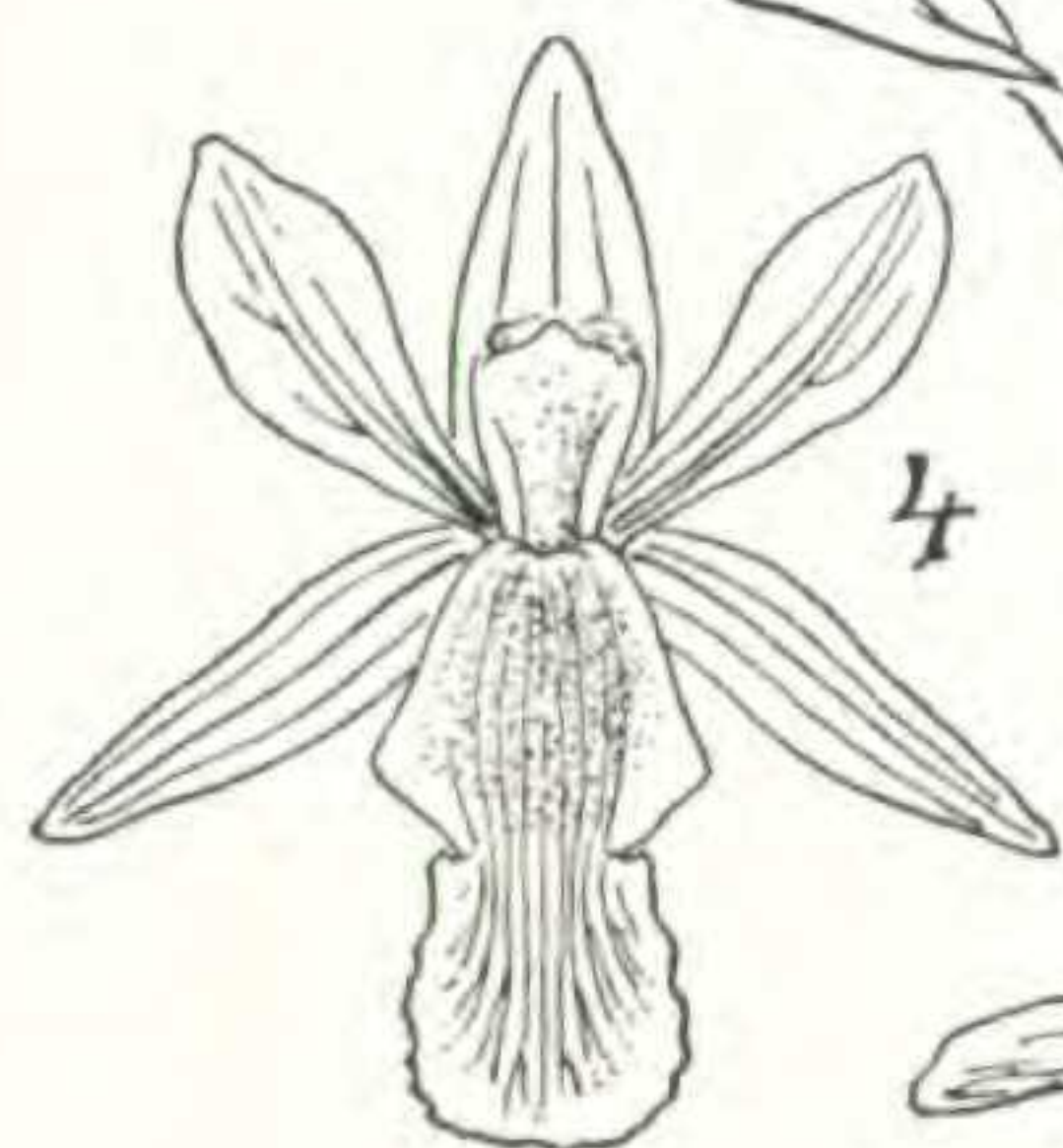
SPIRANTHES



S. pubicaulis
L. Wms.



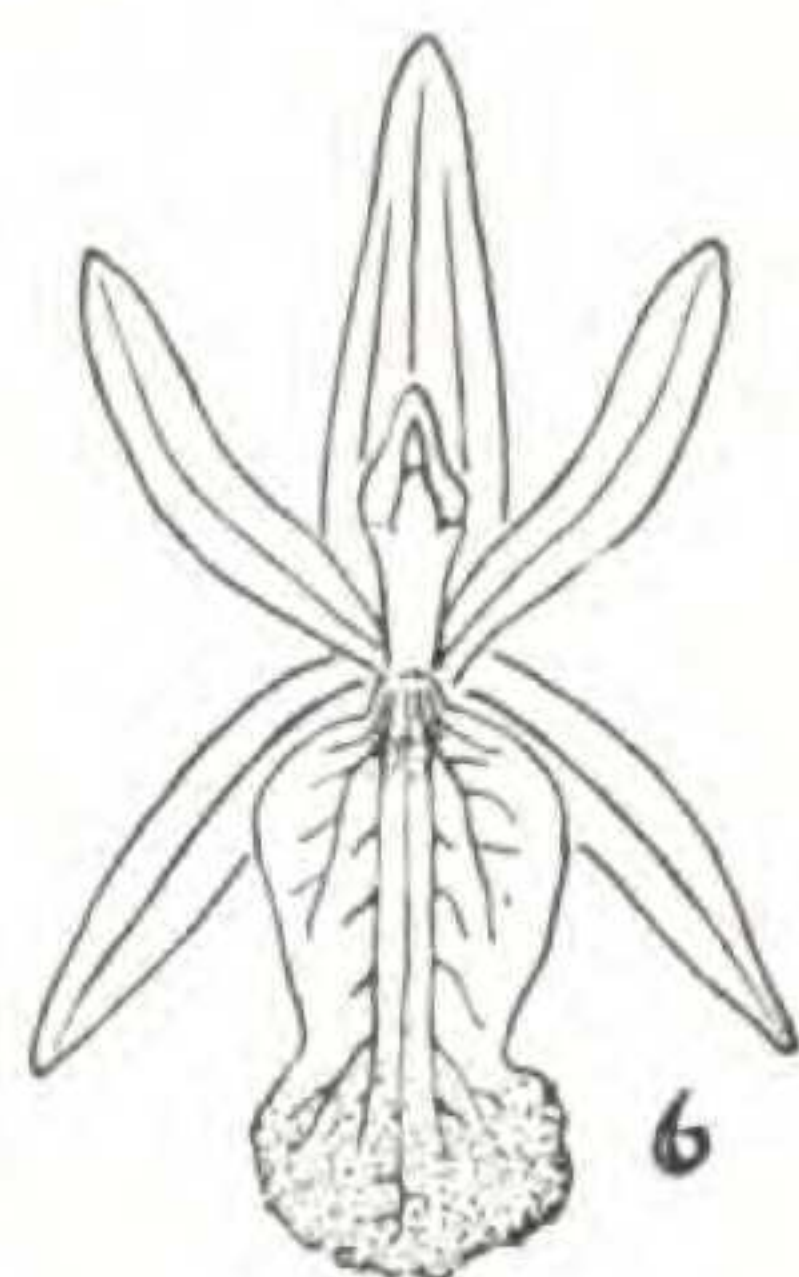
S. falcata
L. Wms.



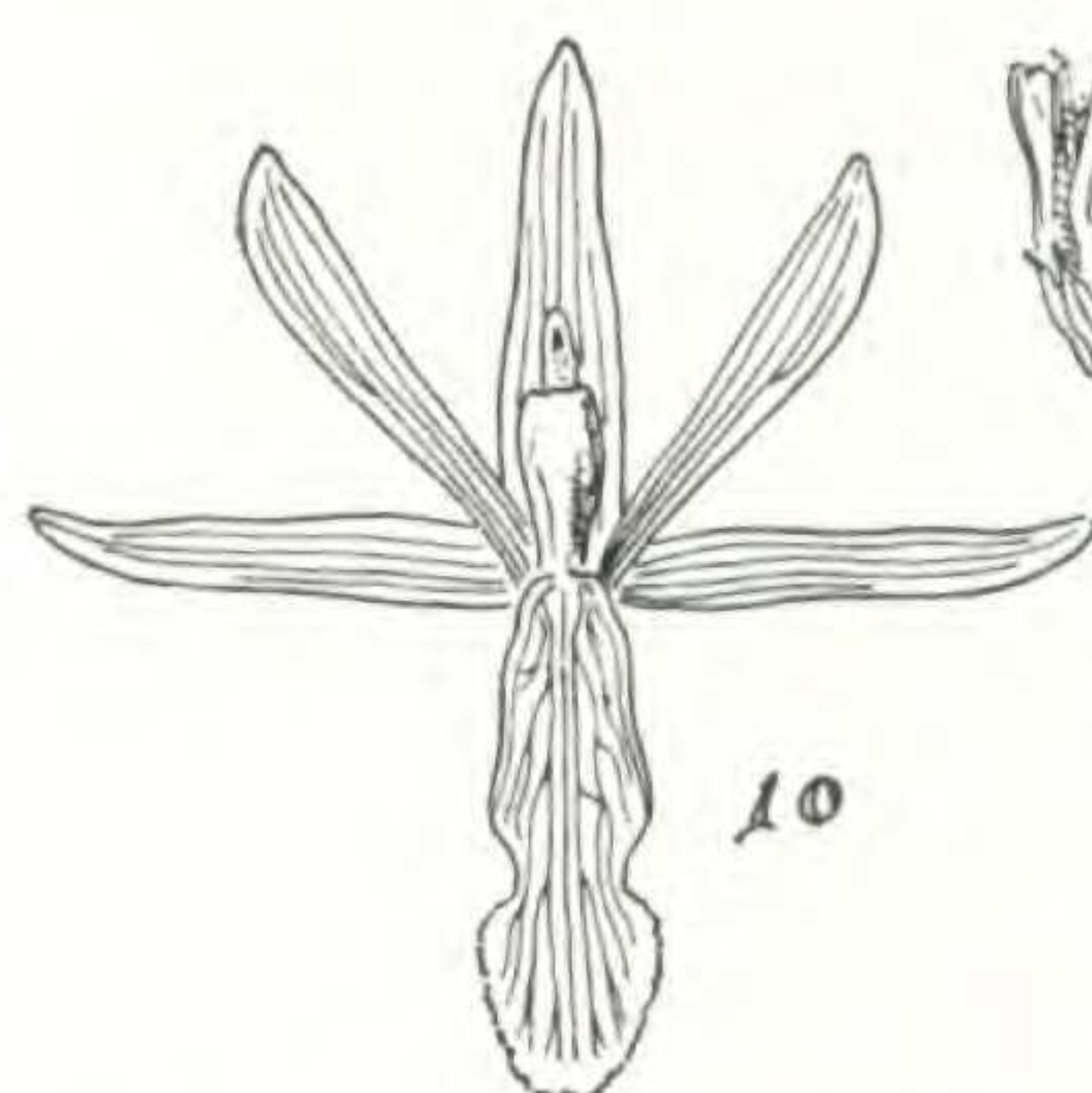
S. Nagelii
L. Wms.



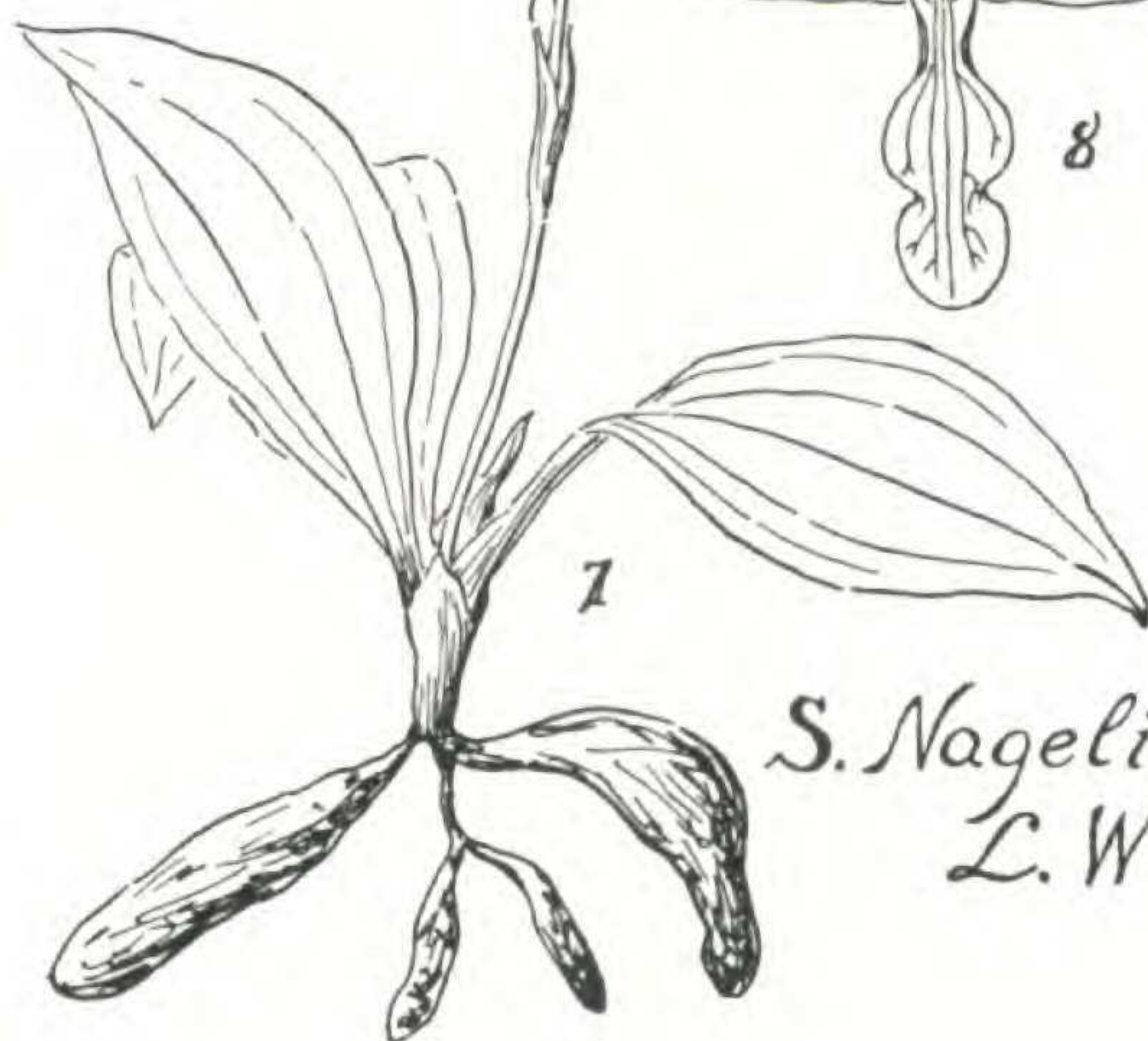
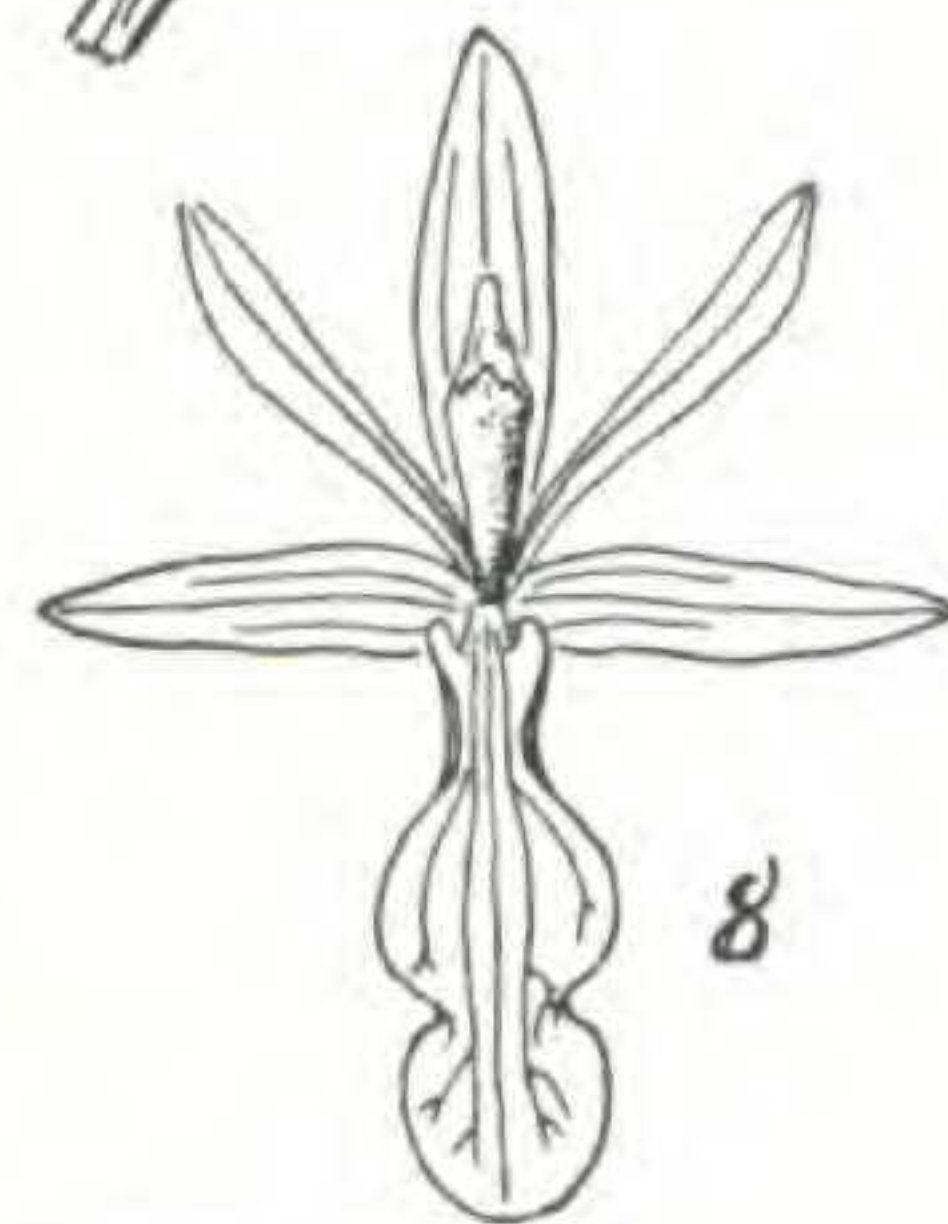
S. tenella
L. Wms.



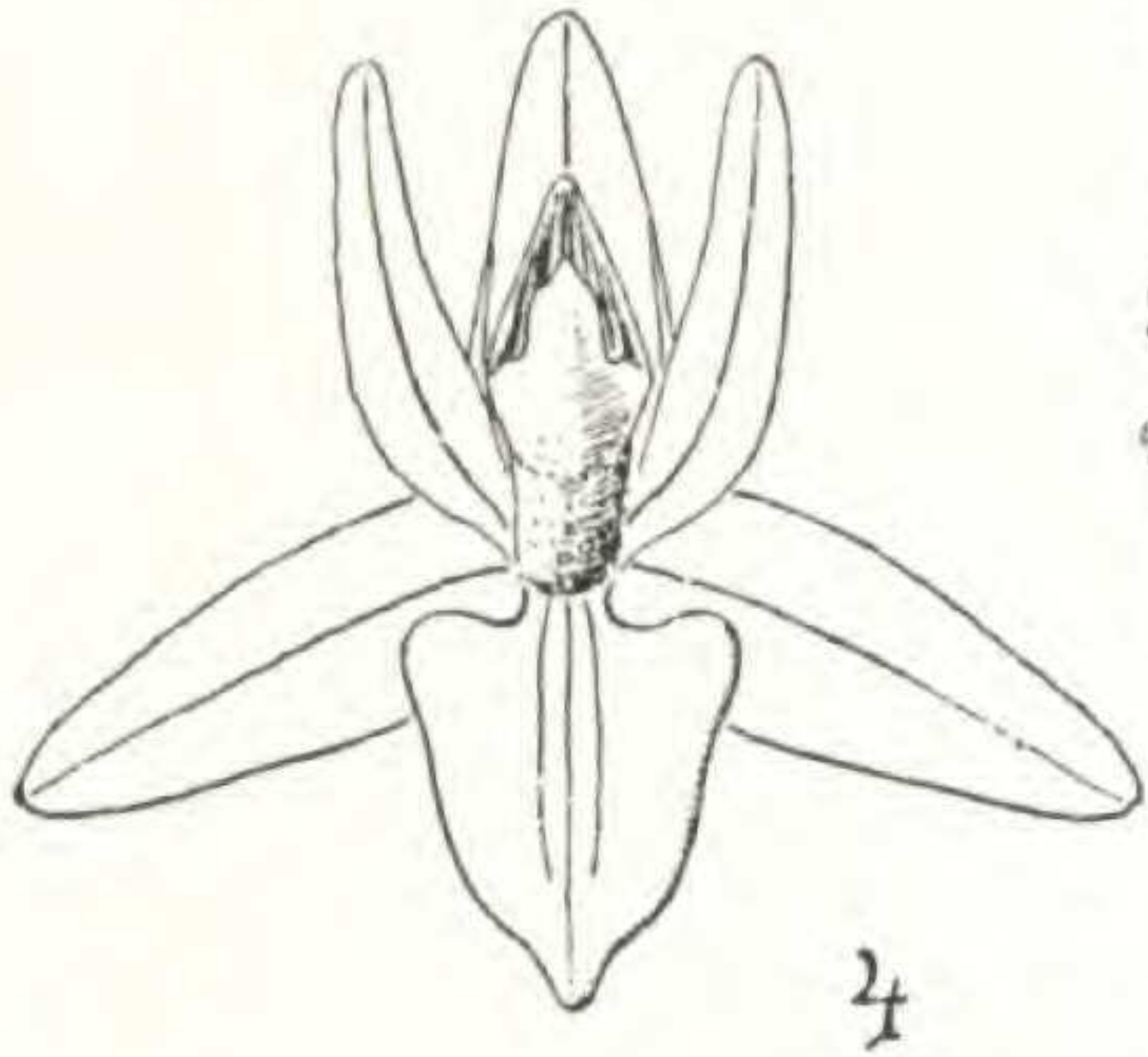
Gordon
Dillist



S. congestiflora
L. Wms.

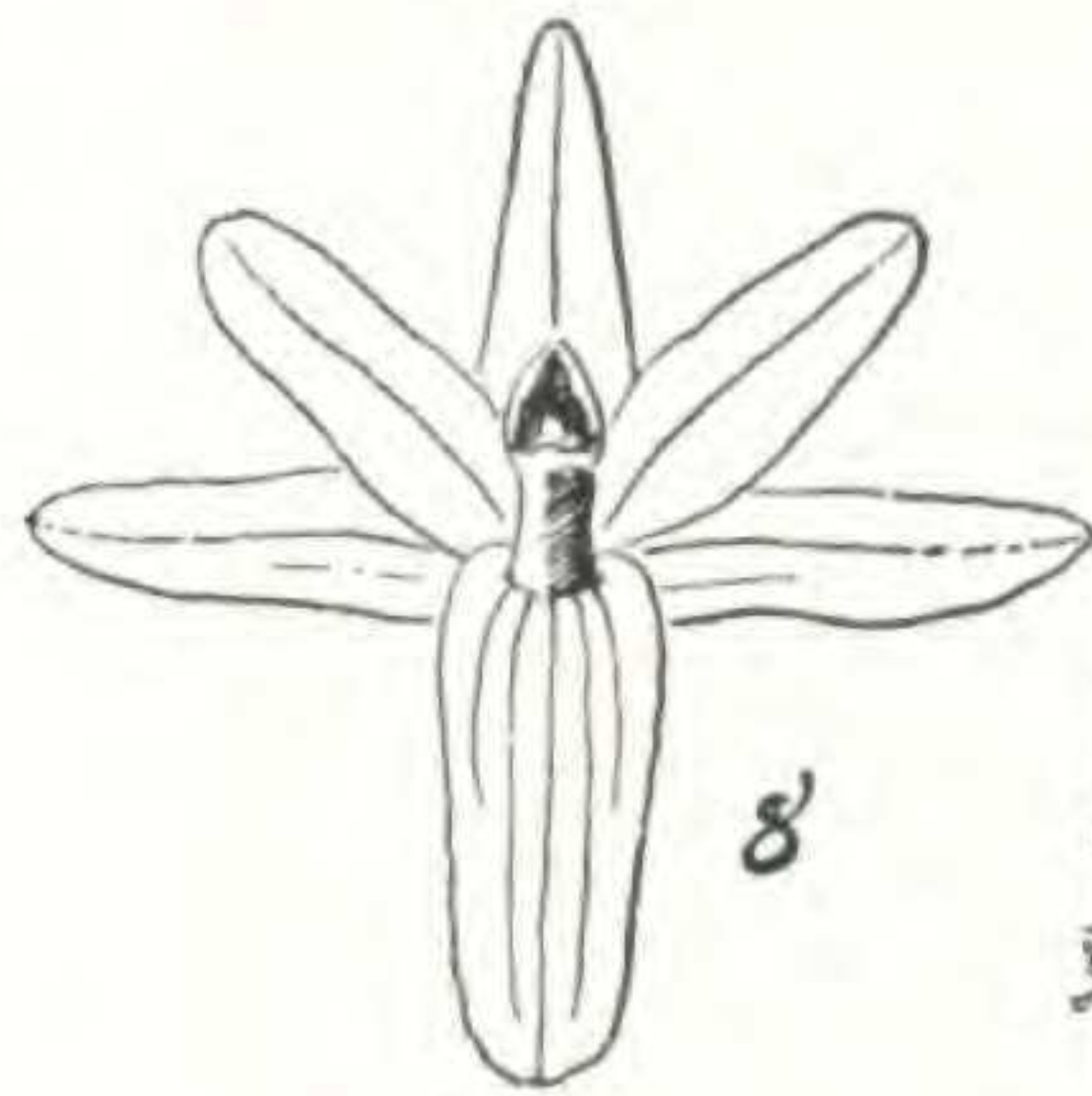


SPIRANTHES *pseudo-pyramidalis*
L. Wms.



4

S. Gonzalezii
L. Wms.

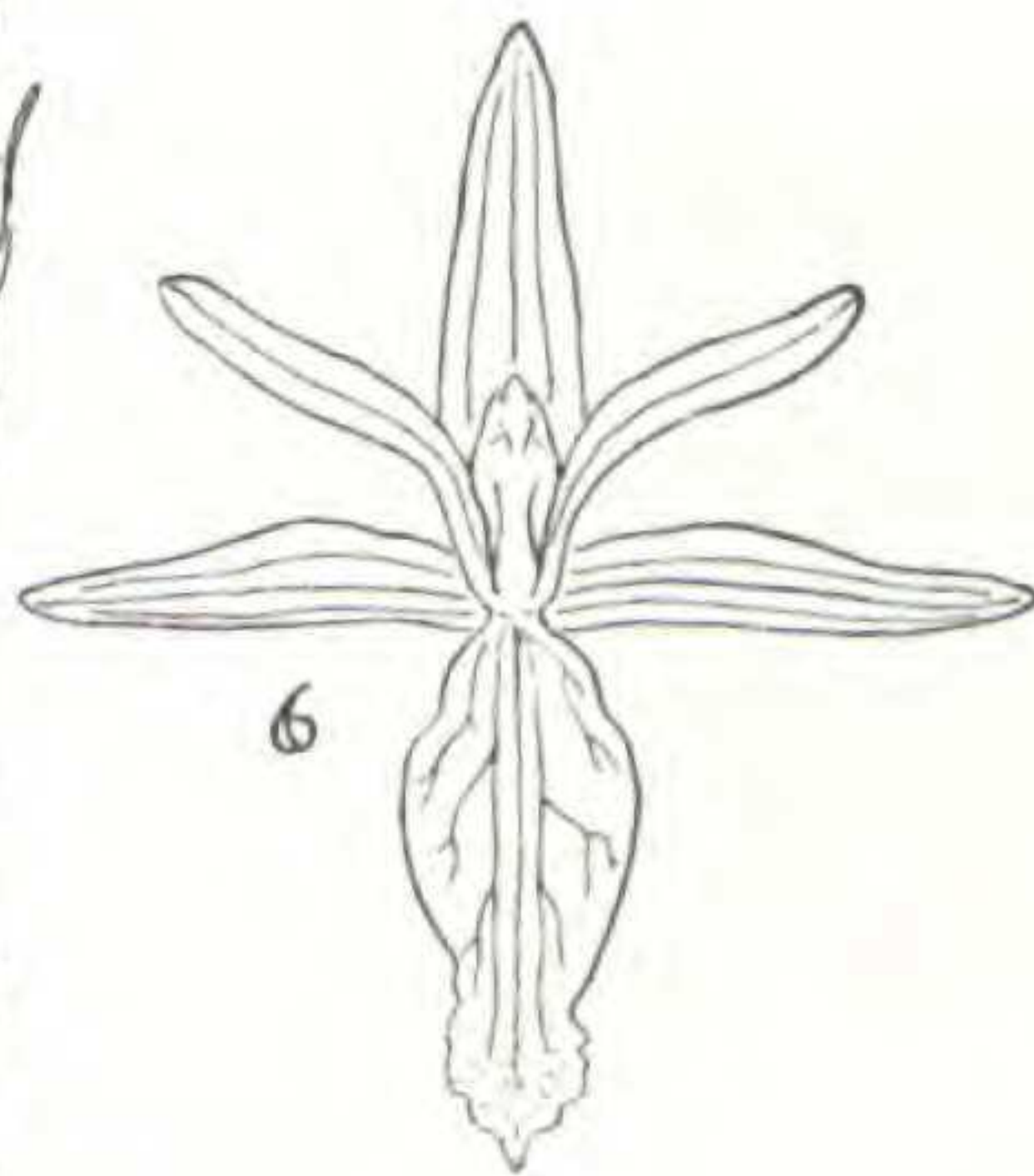


8

S. tenuissima
L. Wms.

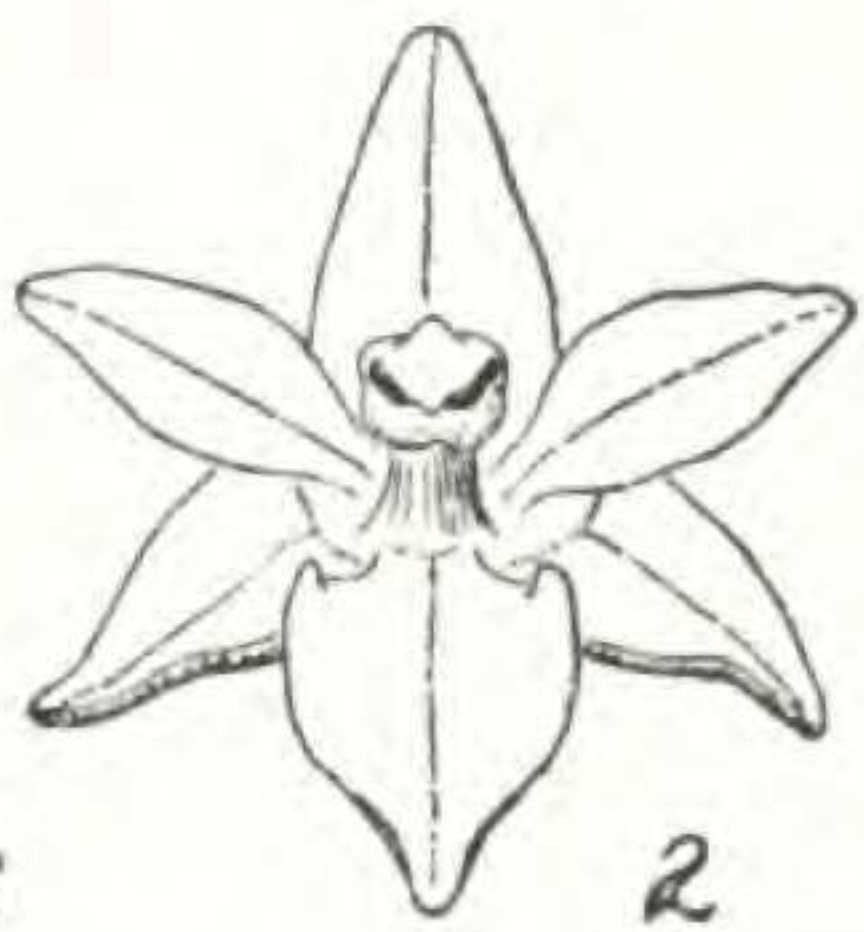


7



6

S. pseudo-goodyerioides
L. Wms.



2



1



5

GORDON
&
DILLON